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CLIMATOLOGICAL DATA FOR JAMAICA.

Through the kindness of Mr. H. H. Cousins, chemist to the government of Jamaica and now in charge of the meteorological service of that island, we have received the following table in advance of the regular monthly weather report for Jamaica:

Comparative table of rainfall for August, 1903.
[Based upon the average stations only.]

Divisions.	Relative area.	Number of stations.	Rainfall.	
			1903.	Average.
	Per cent.		*Inches.*	*Inches.*
Northeastern division	25	23	16.54	8.15
Northern division	22	58	8.61	4.55
West-central division	26	25	15.05	9.60
Southern division	27	33	10.95	5.50
Means	100	139	12.79	6.95

The rainfall for August was therefore very much more than the average for the island. The greatest fall, 34.29 inches, occurred at Cedar Valley in the northeastern division while 2.40 inches were recorded at St. Anns Bay in the northern division.

THE HURRICANE OF AUGUST 11, 1903, AT JAMAICA.

By H. H. COUSINS, in charge Jamaica Weather Service.

A warning issued by the United States Weather Bureau was received at noon on August 8, stating that a cyclone off Barbados was traveling in a northwesterly direction. Later it was announced: "The disturbance east of Barbados will move northwest over the Windward Islands. Probably of dangerous strength."

Traveling in a direct line the cyclone first struck the extreme eastern end of the island at Morant Point a little before midnight on Monday the 10th. I am of opinion, from the data available, that the central track of the cyclone was through Manchioneal, Moore Town, Claremont, Browns Town, and Falmouth, and thence in a direct line to Grand Cayman and Yucatan where the hurricane finally spent its force.

The destructive zone of the cyclone was a little over 35 miles in width, and it attained its maximum width in Jamaica at a section from Galina Point north of Port Maria to central St. Catherine.

Points just outside this zone and in parallel line therewith are as follows: Port Royal, Hartlands, Rock River, Christiana, Cambridge, and Lances Point, west of Lucea.

This central zone involved destruction or injury to buildings and large trees. The whole of Jamaica, therefore, north of a line from Spanish Town to Lucea has been devastated.

From the records of the United States Weather Bureau office in Kingston the following observations may be drawn: The barometer fell .10 inch between 10 a. m. and 3 p. m. on the 9th; it recovered to 29.9 by 10 p. m. From this time it fell steadily .20 inch until 3 p. m. on the 10th, when a slight rise took place. Standing at 29.8 at 10 p. m., a rapid fall took place, and by 5:30 a. m. of the 11th the lowest point, 29.05, was attained. The rise was twice as rapid as the fall. By 11 a. m. the barometer had risen again to 29.8. The rainfall was only 2.25 inches.

At Moy Hall, in St. Thomas, 14.64 inches fell in 13 hours during the storm. The Kingston records represent those for a point estimated to be 16 miles south of the center of the hurricane. The cyclonic disturbance moved at a uniform rate of a little over 20 miles per hour, and its rotation counter-clockwise accounts for the change from the northwesterly winds during the first half to the southwesterly winds during the final stage of the hurricane.

SOIL TEMPERATURES AND VEGETATION.

By DANIEL TREMBLY MACDOUGAL.

A committee on the relation of plants to climate was appointed at the New York meeting of the American Association for the Advancement of Science in June, 1901, to which was delegated the task of carrying out some work upon the relations of plants to various climatic factors. The actual investigations planned by the committee were entrusted to the author for execution, and a set of thermographs was put in action in northern Idaho in the summer of the same year in addition to the battery that was installed in the New York Botanical Garden. During the following year some thermometric observations were made in the Mission Mountains and Kootenai Mountains, in northern Montana, and a paper was presented at the meeting of the Association in Denver, August, 1901, describing a method of estimating the total temperature exposure of a plant which would be specially applicable and useful in measuring the influence of temperature upon the shoots of plants.

The basal portions of a typical plant, often the larger part of the body, are imbedded in the soil at various depths, and no adequate study of the influence of temperature upon physiological processes could be made until some accurate, graphic, and convenient method was devised for taking continuous records of the soil. The committee was given a second grant by the Association, and additional funds were also voted at the Pittsburg meeting in July, 1902. By the aid of additional contributions from the New York Botanical Garden efforts were made to devise an instrument that would meet the above needs. The committee was so fortunate as to enlist the active interest and practical cooperation of Prof. William Hallock, of Columbia University, who undertook to design a thermograph that would make a continuous record of the soil at any desired depth. A single working model was constructed in the autumn of 1901 and was tested for several months in Professor Hallock's laboratory before being installed in the Botanical Garden, May 2, 1902. A description of this instrument, together with the records obtained for May, 1902, have already been published.[1] It will be profitable to repeat this description here, together with the accompanying illustration (see fig. 1).

The thermal element of the instrument consists of a copper bulb or globe 11 centimeters in diameter (fig. 1, A), with a strengthening equatorial ridge of solid metal, filled with commercial kerosene. A short section of copper tubing with the walls flattened on two sides for convenience of manipulation during construction is soldered to a suitable opening in one pole of the copper globe, and the free end of the heavy tube is likewise soldered to a small copper tube with an external diameter of about 4 millimeters and an internal diameter of 1 millimeter. This tube is also filled with petroleum and may be of any reasonable length up to 10 meters or perhaps more without vitiating the accuracy of the instrument to any appreciable extent. Furthermore, in practise this tube may be variously bent and curved in making adjustments without detriment to the results obtained (fig. 1, C).

The free end of the capillary tube is connected through an opening in the side with the chamber in the interior of a solid

[1] MacDougal. The temperature of the soil. Journal of the New York Botanical Garden. 3: 125–131. July, 1902.